III. "On the Diastase of Kôji." By R. W. Atkinson, B.Sc. (Lond.), Professor of Analytical and Applied Chemistry in the University of Tôkiô, Japan. Communicated by Professor A. W. Williamson, For. Sec. R.S. Received March 3, 1881.

(Abstract.)

The paper contains the results of an investigation into the nature of the material used in Japan for converting starch into sugar in the brewing operations. This substance "kôji" is prepared from steamed rice by allowing the spores of a fungus, mixed with the grain, to vegetate over the surface. Details of the manufacture are given, and it is shown that the rice suffers a loss of 11 per cent., calculated upon the substance dried at 100° C. At the same time a great evolution of heat occurs.

A solution of the soluble portion of the "kôji" thus prepared is shown to possess properties analogous to those of malt-extract, although differing from it in some important respects. It rapidly inverts cane-sugar and hydrates maltose and dextrin. It liquefies starch-paste, forming at first maltose and dextrin, but giving as ultimate products dextrose and dextrin. Curves accompany the paper showing the action of the extract of "kôji" upon starch-paste at different temperatures.

The paper concludes with an examination of the change which the rice grain undergoes by the growth of the mycelium of the fungus, and it is pointed out that the principal effect produced by the growing plant is to render the insoluble albuminoids previously existing in the rice soluble.